

Risk/Return Relationships for Life-Health, Property-Liability, and Diversified Insurers: Reply

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In Hardigree and Anderson's discussion of the empirical information used in our study (Hoyt and Trieschmann, 1991), their recurrent theme is that the number of companies included in the study constituted an inadequate sample size for purposes of statistical inference. We fully describe in the article our motivation for selecting the companies in the manner that we did. As Hardigree and Anderson acknowledge in their comment, other studies of insurer market returns have been forced to rely on relatively small samples of companies as well. It is not clear that the small sample sizes utilized in our study are inadequate for purposes of making meaningful statements concerning risk/return relationships for the three insurer segments.

Clarification of Intent

Hardigree and Anderson suggest that it is unlikely that valid statistical inferences can be made from our data with respect to the populations of life-health, property-liability, and diversified insurers. Although we did not specifically state the population of interest, we did state in the opening paragraph that "the goal of the study is to assess whether identifiable risk-return advantages existed for investors in each of the three insurer segments during the period 1973 through 1987." Therefore, we believe it is clear that our intent was to focus on widely-traded publicly-held insurers, not the entire population of insurers. In the first footnote we specifically mentioned that (for obvious reasons) mutual insurers are not considered in a study utilizing stock returns. Hardigree and Anderson state that this fact is not "represented in the body of the article." We certainly consider footnotes to be part of the body of an article.

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A Compelling Argument Against Bias

In challenging the representativeness of our sample, Hardigree and Anderson state that "bias is suspected because there was no element of randomness in the selection process." It does not automatically follow that the companies used in our study represented a biased sample. We observe that similar stocks to those included in our sample are used by Standard & Poor, Dow Jones, and A. M. Best in their indexes of insurer stock performance and that the empirical results we obtained are similar to those obtained by using the Best Insurance Stock Indexes. These indexes are all widely reported, and market discipline would be expected to assure that they reasonably reflect the performance of insurer stocks. In addition, we cite a very high correlation between returns for the property-liability insurers in our sample and the returns for the insurers in the Insurance Services Office (1987) study. Hardigree and Anderson assert that the above evidence provides no proof of representativeness. However, we believe that taken together this evidence provides a compelling argument against a presumption of bias.

Determining Sample Size

Several problems exist with the manner in which Hardigree and Anderson apply the formula they give for determining sample size. First, it assumes an infinite population size. Second, the numbers given in their comment are based on the standard deviation of average returns over time. The appropriate standard deviation would be the standard deviation of returns across insurers. For diversified insurers in our sample, the standard deviation in 1987 was 1.39. Utilizing the formula cited by Hardigree and Anderson, the necessary sample size would be eight insurers. However, using the standard deviation for 1985 would yield a necessary sample size of 56. These differences result because the sample standard deviations are unstable over time. The same methodology used by Hardigree and Anderson to calculate sample sizes of 95 diversified insurers and 100 property-liability insurers would have yielded a required sample size of 11 life insurers, which is, indeed, the number in our sample. Not surprisingly, they omit this information from their comment. The point is that the statistical formula cited by Hardigree and Anderson for determining appropriate sample size requires that the researcher exercise a significant amount of judgment. We certainly would have preferred to have a larger sample of insurers but were not able to since the size of the population is uncertain, the standard deviation is unknown and apparently unstable, and the degree of error is open to debate.

Recent Support

Interestingly, a recent study by Comment and Jarrell (1991) yielded results that lend support to the empirical evidence reported in our article. They consider the effect that corporate focus, the reverse of diversification, has had on stock returns for general corporations. According to their statistical analysis,

over the period 1978 through 1988 increases in corporate focus had relatively large positive influences on stock returns. They further conclude that "the pursuit of corporate risk reduction through diversification has been motivated more by the interests of 'stakeholders' than by the interests of owners."

Consistent with the findings of Comment and Jarrell, we found that the advantage of corporate focus over diversification for insurers is greater in the period 1979 through 1987. These results suggest a need for further research to assess the relative advantages of corporate focus versus diversification. We believe this is a fertile area for future research.

References

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